UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,014	06/24/2003	Jeffery Scott Hawkins	1913.3008.001 (DDC)	2442

7590 11/17/2005

David A. Burns
Reising, Ethington, Barnes, Kisselle, P.C.
P.O. Box 4390
Troy, MI 48099

EXAMINER	
CAVALLARI, DANIEL J	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,014	HAWKINS, JEFFERY SCOTT	
	Examiner	Art Unit	
	Daniel J. Cavallari	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-12,18 and 19* is/are rejected.

7)☒ Claim(s) *4-7 and 13-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 June 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/24/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 6/24/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

The drawings are objected to because they fail to show every feature of the invention specified in the claims. The "master on/off switch" (52) fails to be shown in the drawings. Although paragraph 23 explains the "master on/off switch" (52), it is failed to be incorporated into the circuit drawings 3, 5, or 6.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Various reference numbers in the specification do not match up with and/or are missing from the drawings referenced. Examples include but are not limited to:

- Reference numbers 74 and 85 (Paragraph 26 of the specification) are not disclosed in Figure 3, as expected (See Paragraph 25 of Specification)
- Reference number (52) is not present in Figures 4A-C, as described in Paragraph 31 of the specification.

The applicant is requested to fix these and other drawing errors in the specification and drawings making sure that reference numbers correctly correspond to the drawing number they reference.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "shutting down the engine immediately after the step of determining whether three conditions exist, does not reasonably provide enablement for shutting down the engine "before" determining whether three conditions exist. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

The specification discloses shutting down the engine after three conditions are met, specifically vehicle speed, engine speed, and engine temperature but fails to disclose shutting down the engine before such determinations are made (See Paragraph 29). The Claim will be examined as enabled by the specification to mean "shutting down the engine immediately after the step of determining whether three conditions exist."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson et al. (US 5,317,998) and Goertler et al. (US 4,520,271)

Hanson et al. teaches:

- Determining that one of three conditions exists, read on by a temperature of a cab of a vehicle being outside of a predetermined range (See Abstract & Column 6, lines 11-43)
- Determining if a battery voltage is below a predetermined limit (See Column 12, Lines 21-30)
- Determining if an engine temperature is below a predetermined limit (See Column 10, Lines 27-33)
- Confirming that a hood is closed, that a transmission is in neutral, and that a park brake is set (See & Column 4, Lines 20-28 & Column 7, Line 63 to Column 8, Line 5)

Hanson et al. teaches the use of various sensors but fails to teach confirming that a fuel level is above a predetermined level. Goertler et al. teaches a fuel sensor

(48) used to measure the amount of fuel in a tank of a vehicle and adjust the automatic shutdown system depending on whether the fuel is above a predetermined level (See Column 4, Lines 12-22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the fuel sensor to monitor the fuel level and determine if it is above a predetermined level, as taught by Goertler et al. into the engine control system taught by Hanson et al. The motivation would have been to have the ability to conserve fuel (See Column 4, Lines 12-22).

Hanson et al. further teaches:

In regard to Claim 2

- Warning the operator of a pending engine start before the step of starting the engine read on by the buzzer which is activated when an automatic engine start is going to be made (See Column 4, Lines 14-19).

In regard to Claim3

- Confirming that the engine is idling, read on by step 328 (See Column 11, Lines 55-64 & Figure 8)
- Confirming that an ignition switch is in an on position read on by step 88 (See Figure 2) which is an option that concerns the position of the ignition switch and the operation of the control apparatus (See Column 5, Lines 15-40). Confirmation takes place in step 154 (See Figure 3A) in which the ignition is

confirmed to be on, as is the case when IGTASF = 1 (See Column 7, Lines 50-57).

- Automatically shutting down the engine immediately after determining whether three conditions exist, these conditions read on by engine oil pressure, battery voltage, and the safety string (See Column 12, Lines 17-43).

Claims 8, 9, 10, & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sutton and Kippe (US 6,588,449)

In regard to Claim 8, 10, & 12

Sutton teaches:

- A battery having a positive lead (50) (See Column 3, Lines 56-58)
- An engine control module (IC1) (See Figure & Column 4, Lines 1-23)
- A first enabler circuit providing a digital input to the engine control module, read on by the electronic component (IC1) having a park brake switch (SW4), a hood switch (SW3), neutral gear switch (SW2) wired in series and ground via resistor (R2) (See figure & Column 3, Lines 56-68)

Sutton fails to teach a fuel level switch engaged electrically to the engine control module for indicating a low fuel level condition below a predetermined amount which overrides automatic starting of the engine by the engine control system.

Kippe teaches overriding engine operation by providing a fuel level switch, read on by the solenoid and valve (51', 52'), connected to a fuel level sensor (70) that is directly electrically extended from an engine control module (EEC) that produces a signal when the fuel level in the fuel tank falls below a predetermined amount and disables the engine (See Figure 3 & Column 5, Lines 12-26) by cutting off the fuel supply with the switch (51',52'). Furthermore, this signal could be used for sending a digital low fuel signal to the engine control module.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate fuel level switch override, as taught by Kippe, into the engine control system of Sutton. The motivation would have been to prevent air from being ingested into the fuel pump (See Kippe Abstract)

Sutton further teaches:

In regard to Claim 9

- A second enabler circuit extending electrically between the positive lead (50) and the engine control module (IC1) having an ignition switch (SW1) having an on position for enabling the engine control system (See Column 3, See Column 3, Lines 56-68)

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sutton, Kippe and Brandwein et al. (US 3,906,437)

Incorporating all arguments above of the engine control system taught by Sutton, Sutton and Kippe fail to explicitly teach an analog voltage sensor. Brandwein et al. teaches a fuel level sensor (40g) attached to a sensor signal voltage conditioning and calibrating means (42b through 42g) that produces and conditions analog signals are transmitted to an indicating means (See Column 9, Lines 36-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an analog voltage sensor as taught by Brandwein et al. into the engine control system taught by Sutton and Kippe. The motivation would have been to provide a means to convert the signal from an analog sensor and condition the output voltage of the sensor into a signal that the control module could use.

Claims 18 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson et al. and Kippe

Hanson et al. teaches:

- An engine control module (38) for receiving inputs and automatically starting and stopping an engine (See Column 4, Lines 14-28)
- An input for sending an initiating signal to the engine control module (38) (See Figure 1) and (Column 4, Lines 20-28) in which the main control board (38) receives an input from a sensor (ie. engine hood position) from the interface board (46).

- A safety enabler circuit (46) formed by a string of switches (See Column 4, Lines 20-28)

Sutton fails to teach a safety enabling fuel level switch engaged electrically to the engine control module for indicating a low fuel level condition below a predetermined amount which overrides automatic starting of the engine by the engine control system.

Kippe teaches overriding engine operation by providing a fuel level switch, read on by the solenoid and valve (51', 52'), connected to a fuel level sensor (70) that is directly electrically extended from an engine control module (EEC) that produces a signal when the fuel level in the fuel tank falls below a predetermined level and disables the engine (See Figure 3 & Column 5, Lines 12-26) by cutting off the fuel supply with the switch (51',52').

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate fuel level switch override, as taught by Kippe, into the engine control system of Sutton. The motivation would have been to prevent air from being ingested into the fuel pump (See Abstract, Kippe)

Sutton teaches a set of parameters whereby each parameter is orientated with a respective switch and where the engine is not started if an unsafe condition is present (See Column 7, Line 63 to Column 8, Line 25 & Column 4, Lines 20-28) but fails to teach where each switch is a grounded switch.

Homme teaches grounded switches (264b,264c,264d) activated in response to various sensors (17 & 18) connected to control circuitry (294). Homme also teaches operating a solenoid, read on by a relay coil (270) controlled by a grounded switch (268) (See Column 10, Lines 58-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the grounded switches taught by Homme into the engine control system of Hanson et al. which is silent as to the switching system used to interface the sensors and control board as well as a grounded switch to control the solenoid of the fuel level switch. The motivation would have been to provide the main control board of Hanson et al. with an appropriate signal level, ground, in which to process.

Allowable Subject Matter

Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and with claim 3 fixed of its 112 problems.

Hanson et al. teaches initiating and enabling a pre-programmed idle shutdown timer read on by the engine running time (ERT) being compared with the minimum idle time value (MIRT) (See Column 11, Lines 55-64). Confirming that an active switch, read on by switch 66, has been placed in the on position, read on by step 154 (See Figure 3A & Column 7, Lines 38-49) prior to expiration of the countdown, read on by

step 330 (See Figure 8) which is called from the process of Figure 6 (See Column 11, Lines 1-19), after the step of confirming that an ignition switch is in an on.

However, Hanson et al. and prior art of record fail to teach all the limitations of the claim including the step of confirming the ignition switch in an on position and the engine idling prior to confirming an active switch has been placed in an on position.

Claims 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Sutton teaches connecting switches (SW1-SW4) in series (See Figure) and Kippe teaches a fuel level switch 51' however there is a lack of motivation to combine the fuel level switch wired in series with the park brake switch, hood switch, and neutral gear switch.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Goertler et al. (US 4,520,271) teaches a fuel level sensor that senses the amount of fuel in a tank of a motor vehicle and if the amount is below a predetermined level, then the vehicle is switched off very quickly after a standstill in order to conserve fuel.
- Letang et al. (US 2003/0060949 A1) teaches a low fuel level signal as well as sending either analog or digital signals from the sensors (See Paragraph 25)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Cavallari whose telephone number is (571)272-8541. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJC

November 9, 2005

BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800